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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,795	07/10/2003	Konstantina Papagiannaki	2275/SPRI.103899	1973
32423 7590 01/24/2008 SPRINT COMMUNICATIONS COMPANY L.P. 6391 SPRINT PARKWAY KSOPHT0101-Z2100 OVERLAND PARK, KS 66251-2100			EXAMINER SALL, EL HADJI MALICK	
			ART UNIT 2157	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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<b>Office Action Summary</b>	Application No. 10/616,795	Applicant(s) PAPAGIANNAKI ET AL.	
	Examiner El Hadji M. Sall	Art Unit 2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 December 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. This action is responsive to the request for continued examination filed on December 19, 2007. Claims 1-25 are pending. Claims 1-25 represent method for computing aggregate traffic between adjacent points of presence in an Internet protocol backbone network.

2. ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-3, 5-12, 14-18, 20 and 21 are rejected under 35 U.S.C. 102(e) as being unpatentable over Maltz et al. U.S. 20020143928.

Maltz teaches the invention as claimed including method and system for collection and storage of traffic data in a computer network (see abstract).

As to claim 1, Maltz teaches a method for determining link utilization in an IP network, the method comprising:

Collecting utilization values for links in the IP network over a predetermined polling period (paragraph [0068]);

Collecting topological information for links in the IP network (paragraph [0080]; paragraph [0068]; figure 8); and

Correlating the link utilization values with the topological information (paragraph [0037]; paragraph [0080]).

As to claim 2, Maltz teaches the method for determining link utilization of claim 1, further comprising:

Calculating aggregate link demand (paragraph [0040]).

As to claim 3, Maltz teaches the method for determining link utilization of claim 2, wherein calculating aggregate link demand comprises:

Identifying the Point of Presence pairs connected by each link using the topological information (paragraph [0029]);

Summing the utilization values collected for each of the links connecting a Point of Presence pair over a predetermined time period (paragraph [0049]); and

Dividing the sum of link utilization values for each Point of Presence pair by the number of utilization values included in the sum (paragraph [0068]).

As to claim 5, Maltz teaches the method for determining link utilization in an IP network, the method comprising:

Collecting link utilization values from routers in the IP network over a predetermined polling period (paragraph [0068]);

Collecting topological information from routers in the IP network (figure 8; paragraph [0080]; paragraph [0068]);

Correlating link utilization values with the topological information by identifying the Pointy of Presence pairs connected by each link for which a link utilization values was collected (paragraph [0037]; paragraph [0080]; paragraph [0029]);

Summing the utilization values for each link connecting a pair of Points of Presence (paragraphs [0049] and [0068]); and

Dividing the sum of link utilization values for a pair or Point of Presence by the number of link utilization values included in the sum (paragraph [0068]).

As to claim 6, Maltz teaches the method for determining link utilization of claim 5, wherein collecting incoming and outgoing link utilization values from routers in the IP network further comprises each router transmitting SNMP messages using UDP transport protocol (paragraph [0094]; paragraph [0101]-[0102]; paragraph [0118]-[0119]).

As to claim 7, Maltz teaches the method for determining link utilization of claim 6, wherein collecting link utilization values from routers in the IP network comprises:

Receiving an exponential weighed moving average of link utilization measurements for a first short time frame (paragraph [0045]); and

Averaging the received moving average link utilization measurements over a second longer time frame (paragraph [0074]).

As to claim 8, Maltz teaches the method for determining link utilization of claim 6, wherein collecting link utilization values from routers in the IP network comprises:

Receiving the total number of bytes transmitted over a link for a first short time frame (paragraph [0068]; paragraph [0045]); and

Averaging the received total number of bytes over a second longer time frame (paragraph [0074]).

As to claim 9, Maltz teaches the method for determining link utilization of claim 6, wherein collecting link utilization values from routers in the IP network comprises:

Receiving the total number of bytes received over a link for a first short time frame (paragraph [0068]; paragraph [0045]); and

Averaging the received total number of bytes over a second longer time frame (paragraph [0074]).

As to claim 10, Maltz teaches the method for determining link utilization of claim 6, wherein collecting link utilization values from routers in the IP network comprises:

Receiving the total number of bytes transmitted and received for a link over for a first short time frame (paragraph [0068]; paragraph [0045]); and

Averaging the received total number of bytes for a second longer time frame (paragraph [0074]).

As to claim 11, Maltz teaches the method for determining link utilization of claim 6, wherein downloading configuration information comprises downloading the name of each router, the Point of Presence containing each router, all active links connected to each router, and the destination of each active link connected to each router (paragraph [0033]; paragraph [0052]; paragraph [0036]).

As to claim 12, Maltz teaches the method for determining link utilization of claim 11, wherein collecting topological information from routers comprises downloading configuration information at predetermined time intervals (paragraph [0036]; paragraph [0064]).

As to claim 14, Maltz teaches the method for determining link utilization of claim 13, wherein collecting incoming and outgoing link utilization values from the routers in the IP network comprises collecting incoming and outgoing link utilization from all routers in the IP network (paragraph [0033]).

As to claim 15, Maltz teaches the method for determining link utilization of claim 14, wherein collecting topological information from routers in the IP network comprises collecting topological information from all routers in the IP network (figure 8; paragraph [0080]; paragraph [0068]).

As to claim 20, Maltz teaches the at least one machine readable media for causing at least one network management station in an IP network to perform a method for determining link utilization in an IP network, the method comprising:

Collecting incoming and outgoing link utilization values from routers over a predetermined polling period (paragraph [0068]);

Correlating the link utilization values with the topological information (paragraph [0037]; paragraph [0080]);

Summing the link utilization values collected over a first predetermined time period for all links connecting pair of Points of Presences (paragraph [0049]);

Dividing the sum by the number of link utilization values included in the sum to give an average paragraph [0068]); and

Collecting topological information from the routers at a second predetermined time intervals (figure 8; paragraph [0080]; paragraph [0068]).

As to claim 21, Maltz teaches the at least one machine readable media of claim 20, the method further comprising:



Multiplying the average by the number of links connecting the pair of Points of Presence (paragraph [0074]).

**4. *Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

**5.** Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maltz et al. U.S. 20020143928 in view of Trayford et al. U.S. 6,882,930.

Maltz teaches the invention substantially as claimed including method and system for collection and storage of traffic data in a computer network (see abstract)

As to claim 16, Maltz teaches the method for determining aggregate link utilization between two Point of Presence, the method comprising:

Collecting link utilization values for each link connecting the two Point of Presence over a predetermined polling period (paragraph [0068]);

Summing the link utilization values for all links connecting the two Points of Presence over a predetermined measurement period (paragraph [0049]);

Dividing the sum by the number of link utilization values included in the sum to give an average (paragraph [0068]).

Maltz fails to teach explicitly multiplying the average.

However, Trayford teaches multiplying the average (column 16, line 51).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Maltz in view of Trayford to provide multiplying the average by the number of links connecting the two Points of Presence to calculate a measure of total traffic flowing between the two Points of Presence that is insignificantly effected by one or more missing utilization values. One would be motivated to do so to allow generating an estimate of the actual link delay (column 16, line 53).

As to claim 17, Maltz teaches the method for determining aggregate link utilization between two Points of Presence of claim 16, wherein collecting link utilization data for each link connecting the two Points of Presence comprises:

Each router in the two Points of Presence providing incoming and outgoing link utilization information, the incoming and outgoing link utilization information being an average over a short period of time; and averaging the incoming and outgoing link utilization information over a longer period of time (paragraph [0074]).

As to claim 18, Maltz teaches the method of determining aggregate link utilization between two Points of Presence of claim 17, wherein the incoming and outgoing link utilization information further comprises an exponentially weighted moving average (paragraph [0045]).

As to claim 19, Maltz teaches the method for determining aggregate link utilization between two Points of Presence of claim 18.

Maltz fails to teach explicitly the longer period of time over which the incoming and outgoing link utilization information is averaged comprises ninety minutes.

However, Maltz teaches the longer period of time over which the incoming and outgoing link utilization information is averaged (paragraph [0074]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Maltz in order to provide the longer period of time over which the incoming and outgoing link utilization information is averaged comprises ninety minutes. One would be motivated to do so to allow specific time period.

6. Claims 4, 13 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maltz et al. U.S. 20020143928.

Maltz teaches the invention substantially as claimed including method and system for collection and storage of traffic data in a computer network (see abstract).

As to claim 4, Maltz teaches the method for determining link utilization of claim 1.

Maltz fails to teach explicitly the predetermined time period is at least twice as long as the predetermined polling period.

However, Maltz teaches the predetermined time period and the predetermined polling period (paragraph [0040]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Maltz in order to provide the predetermined time period is at least twice as long as the predetermined polling period. One would be motivated to do so to allow enough time.

As to claim 13, Maltz teaches the method for determining link utilization of claim 12.

Maltz fails to teach explicitly the predetermined time intervals at which configuration information is downloaded comprises one week.

However, Maltz teaches the predetermined time intervals at which configuration information is downloaded (paragraph [0036]; paragraph [0064]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Maltz in order to provide the predetermined time intervals at which configuration information is downloaded comprises one week. One would be motivated to do so to allow specific time period.

As to claim 22, Maltz teaches the at least one machine readable medium of claim 21.

Maltz fails to teach explicitly the first predetermined time period is at least as long as the polling period.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Maltz to provide the first predetermined time period is at least as long as the polling period. One would be motivated to do so to allow just enough time period.

As to claim 23, Maltz teaches the at least one machine readable media of claim 22.

Maltz fails to teach explicitly the polling period comprises five minutes.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Maltz to provide the polling period comprising five minutes. One would be motivated to do so to allow specific time period.

As to claim 24, Maltz teaches the at least one machine readable media of claim 23.

Maltz fails to teach explicitly the first predetermined period comprises ninety minutes.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Maltz to provide the first predetermined period comprises ninety minutes. One would be motivated to do so to allow specific time period.

As to claim 25, Maltz teaches the at least one machine readable media of claim 24.

Maltz fails to teach explicitly the second predetermined time intervals comprise one week.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Maltz in order to provide the second predetermined time intervals comprise one week. One would be motivated to do so to allow specific time period.

## **7. *Response to Arguments***

Applicant's arguments filed 12/19/07 have been fully considered but they are not persuasive.

(A) Applicants argue that Maltz fails to disclose collecting topological information for links, where the topology information identifies each link connecting each adjacent Point of Presence.

In regards to the point (A), Examiner respectfully disagrees.

In paragraph [0080], Maltz discloses ...the network topology information 820 allowing the TMS Statistics collection server to know where to go to collect the desired information...(i.e. "collecting topological information for links")...and information indicating how communication should take place (i.e. "identifying links connecting adjacent Point of Presence pair") with the network element.

(B) Applicants argue that the Maltz reference does not disclose summing the link utilization values for each link connecting a pair of Points of Presence.

In regards to the point (B), Examiner respectfully disagrees.

Paragraph [0068], Maltz discloses ....link utilization can be calculated by measuring the number of bytes (i.e. summing the link utilization values) that flow out a line card interface each...

Paragraph [0049], Maltz discloses maximizing the sum of traffic along all paths or the traffic carried by the network. Furthermore, summing the link utilization of traffic of all paths (as taught by Maltz) have the same functionality as summing the link utilization values for each link connecting a pair of Points of Presence.

(C) Applicants argue that Maltz fails to disclose collecting topological information for links, where the topology information identifies each link connecting each adjacent Point of Presence.

In regards to the point (C), Examiner respectfully disagrees.

In paragraph [0080], Maltz discloses ...the network topology information 820 allowing the TMS Statistics collection server to know where to go to collect the desired information...(i.e. "collecting topological information for links")...and information indicating how communication should take place (i.e. "identifying links connecting adjacent Point of Presence pair") with the network element (i.e. "router")

Paragraph [0068], Maltz discloses ...."link utilization can be calculated by measuring the number of bytes that flow out a line card interface *each second* and dividing by the total number of bytes the link can transmit in a second (i.e. communications technique that determines when a terminal is ready to send data or "predetermined time intervals")".

## **8. Conclusion**

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified



citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner. In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to El Hadji M Sall whose telephone number is 571-272-4010. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for


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the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

El Hadji Sall  
Patent Examiner  
Art Unit: 2157

  
ABDULLAH SALAD  
PRIMARY EXAMINER

